FINDING OF NO SIGNIFICANT IMPACT
FOR BIGHORN SHEEP MANAGEMENT ACTIVITIES
Lake Mead National Recreation Area and Nevada Department of Wildlife

INTRODUCTION

The National Park Service (NPS), Lake Mead National Recreation Area (NRA), in coordination with the Nevada Department of Wildlife (NDOW), has prepared an environmental assessment (EA) that evaluates bighorn sheep (*Ovis canadensis nelsoni*) management activities within the Eldorado Mountains, Newberry Mountains, Black Mountains, River Mountains, and Muddy Mountains in the Nevada portion of Lake Mead NRA. Part of the action area would occur in designated Wilderness within the recreation area.

PURPOSE AND NEED

Desert bighorn sheep occupy most of the mountainous areas within Lake Mead NRA. The southern Nevada population of desert bighorn sheep is one of the premier populations of desert bighorn sheep in the nation. The fall 2002 and spring 2003 population estimates reflect declines in all herds. Downward trends are due to insufficient availability of quality forage as a result of severe drought conditions, habitat degradation, and habitat fragmentation.

One purpose of this project is to conduct a routine annual census of desert bighorn sheep populations to provide population estimates and to collect demographic data. This information would be used to set sustainable harvest quotas and to inform managers of current herd conditions and trends.

An additional purpose of this project is to affix telemetry collars on bighorn sheep to assess the impacts from highway and bridge construction activities on the sheep.

Aerial net gun captures and/or drop-net captures may be conducted in certain mountain ranges to affix telemetry collars on the bighorn sheep. As part of NDOW's ongoing trapping and transplant program, bighorn sheep may be captured and relocated to other areas to supplement existing populations of sheep.

ALTERNATIVE CONSIDERED

The EA evaluates the effects of the Alternative A, the no action alternative and Alternative B, conduct sheep management activities.

Under the no-action alternative, the routine annual census of desert bighorn sheep would not be conducted in wilderness areas. Sheep populations in the Eldorado, Muddy, Black, River, and Newberry Mountains in Nevada would not be monitored and information regarding their movements and population status would not be gathered. Desert bighorn sheep data would not be provided to land-use managers

Alternative B includes bighorn sheep management activities such as aerial helicopter surveys, placement of telemetry collars for a study, and, if determined appropriate, capture and relocation of selected bighorn sheep. Aerial surveys of bighorn sheep

populations would occur within the Eldorado Mountains, Newberry Mountains, Black Mountains, River Mountains, and Muddy Mountains of Nevada. Activity would involve approximately 2 to 6 hours of flight time in each mountain range at low elevations for the purpose of conducting a routine annual census of desert bighorn sheep populations. Population estimates and demographic data collected would be used to set sustainable harvest quotas and inform managers of current herd conditions and trends. In addition, some bighorn would be affixed with telemetry collars to assess impacts to the sheep from highway and bridge construction. Based on the survey results, some bighorn sheep could be captured and relocated to other areas for transplant purposes.

The EA also includes a minimum requirement analysis for activities proposed in Wilderness areas.

Other Alternatives Considered but Rejected
One alternative considered for accomplishing survey work was using fixed wing aircraft. This alternative was eliminated because the blind-spot from the fixed wings on the aircraft make it difficult for counting, and the impacts from the aircraft would be equally or more intrusive than using helicopters. Another alternative considered for accomplishing survey work was using cameras at bighorn sheep guzzlers. This alternative was eliminated from further consideration because cameras at springs would not give reliable population estimates without long-term study, and it would still require the checking of animals on ground or by air.

Selected Alternative
Alternative B is the selected alternative and is the same as the management preferred alternative in the EA. Under this alternative, the bighorn sheep management activities would include: aerial helicopter surveys, affixing telemetry collars for a study, and, if determined appropriate, capture and relocation of selected bighorn sheep. Aerial surveys of bighorn sheep populations would occur within the Eldorado Mountains, Newberry Mountains, Black Mountains, River Mountains, and Muddy Mountains of Nevada. Activity would involve approximately 2 to 6 hours of flight time in each mountain range at low elevations, frequently 200 feet above ground level or lower for the purpose of conducting a routine annual census of desert bighorn sheep populations. The maximum number of flights in each Wilderness area would be approximately 2 within the Eldorado, and Muddy Mountains; and 1 flight within the Newberry, Black, and River Mountains. Generally one day is the maximum amount of time needed for aerial surveys in each area.

Population estimates and demographic data collected would be used to set sustainable harvest quotas and inform managers of current herd conditions and trends. In addition, some bighorn would be affixed with telemetry collars to assess impacts to the sheep from highway and bridge construction. Based on the survey results, some bighorn sheep could be captured and relocated to other areas for transplant purposes.

The project manager will be Pat Cummings, Biologist, Nevada Department of Wildlife.

Table 1. Overview of Locations and Proposed Activities

Location	Aerial Survey		Capturing		Telemetry Collaring	Loading and Transporting
	Estimated Flight Time	*Potential Dates*	*Estimated Flight Time*	*Date*		
Eldorado Mountains	6 hours	Oct-Nov	16 hours	Oct.	Applicable	Applicable
Muddy Mountains	2 hours	Oct-Nov	Potential capture		Not Applicable	Potential loading and transporting
Black Mountains	6 hours	Oct-Nov	Not Applicable		Not Applicable	Not Applicable
Newberry Mountains	4 hours	Oct-Nov	Not Applicable		Not Applicable	Not Applicable
River Mountains	Not Applicable		6 hrs.	Oct.	Applicable	Not Applicable

Purpose of and Specific Activities at Each Location

Eldorado Mountains, Nevada

An aerial helicopter survey would be conducted and would entail approximately 6 hours of flight time at low elevations. The purpose of this survey is to conduct an annual census of desert bighorn sheep populations and to monitor trends of bighorn herds from northeast Boulder City to the Cottonwood Cove area. There would be no landing or ground activity associated with this census.

Bighorn sheep trapping operations would be conducted in the general vicinity of Promontory Point and Gold Strike Canyon. Approximately 16 hours of flight time may be needed and would include landing to secure netted sheep for attaching radio transmitters, or 2 to 3 days of work. Trapping would be conducted by either helicopter net gun or by drop net. Additional flights would be needed during the course of the study to monitor habitat use and movements of sheep in the area or to investigate mortality signals. Monitoring will be done primarily by satellite, but two additional 3-hour spring surveys are planned in the Eldorados. The purpose of the trapping is to affix telemetry collars on bighorn sheep to assess impacts from highway and bridge construction activities occurring in the vicinity. This is associated with the six-year study funded by the Federal Highways Administration (FHWA) and was discussed in the *Black Canyon Bridge Environmental Impact Statement*.

Muddy Mountains, Nevada

An aerial helicopter survey would be conducted and would entail approximately 2 hours of flight time at low elevations. The purpose of this survey is to conduct an annual census of desert bighorn sheep populations and to monitor trends of bighorn herds from the area east of the Echo Bay access road junction with Northshore Road to Blue Point Spring. There would be no landing or ground activity associated with this census.

Pending the results of the preceding aerial survey, an aerial net gun capture could be initiated in the Muddy Mountains. This would require aircraft landings to secure bighorn

prior to transporting to the Echo Bay Airstrip. Sheep captured from the Muddy Mountains would be used as transplant stock in other areas as part of the NDOW's ongoing trapping and transplant program.

Black Mountains, Nevada
An aerial helicopter survey would be conducted and would entail approximately 6 hours of flight time at low elevations. The purpose of this survey is to conduct an annual census of desert bighorn sheep populations and to monitor trends of bighorn herds from Echo Bay to Black Mesa (areas south and east of Northshore Road). There would be no landing or ground activity associated with this census.

Newberry Mountains
An aerial helicopter survey would be conducted and would entail approximately 4 hours of flight time at low elevations. The purpose of this survey is to conduct an annual census of desert bighorn sheep populations and to monitor trends of bighorn herds within the Newberry Mountains. There would be no landing or ground activity associated with this census.

River Mountains
An aerial net gun capture would be initiated in the River Mountains. The purpose of this capture is to equip approximately 20 sheep with telemetry collars to study the impacts of increasing recreational use and urbanization on bighorn behavior.

ENVIRONMENTALLY PREFERRED ALTERNATIVE
An alternative must meet the following criteria to be considered an environmentally preferred alternative:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;
3. Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
5. Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Alternative A was not selected as the environmentally preferred alternative because it would not promote the preservation of important aspects of our national heritage. The NPS would not meet its goals of protecting the bighorn sheep population for future generations.

Alternative B is the environmentally preferred alternative because overall it would best meet the requirements in Section 101 of NEPA. It would assure for all generations a safe, healthful, and esthetically pleasing surrounding. As one of the premier globally recognized bighorn sheep populations, implementation bighorn management activities would help preserve important natural aspects of our national heritage and would maintain an environment that supports diversity and variety of individual choice. It would achieve a balance between population and resource use, and permit high standards of living and a wide sharing of life's amenities.

MITIGATION AND MONITORING METHODS

Mitigation measures are specific actions designed to minimize, reduce, or eliminate impacts of the Preferred Alternative, and to protect recreation area resources and visitors. Monitoring activities are actions to be implemented before, during or following the treatment activities. These measures are assumed in the analysis of environmental consequences for the Preferred Alternative.

Wildlife

Desert bighorn sheep will be blindfolded upon capture to calm them during the transportation and tagging operations. A veterinarian will be on-site to monitor the captured desert bighorn sheep to ensure their health and well-being

Visitor Experience and Wilderness

A minimum requirement analysis has been completed as part of the EA. The minimum requirement analysis evaluated the options for conducting bighorn sheep management activities in Wilderness, and considered the minimum tool for these types of activities.

The following mitigation will be implemented to reduce impacts to the Wilderness areas and the visitor experience.

Aerial operations over Wilderness areas will usually be confined to weekdays, when possible, to avoid the time of the highest use by wilderness visitors. The Superintendent of Lake Mead NRA may determine that weekend operations are necessary and will document such a determination. Notification of aerial operations over Wilderness will be provided to the public through the park webside, press releases, and at the park visitor centers. The base of operations will all be located outside Wilderness. All ground support vehicles will be restricted to existing access roads, outside of the designated Wilderness. No off-road travel is permitted. All drop-net trapping locations will be located outside designated Wilderness, if possible, in desert washes or previously disturbed areas. If trap locations in designated wilderness are necessary, approval by the Lake Mead NRA Superintendent is required.

Safety

A separate job safety analysis will be prepared by the project manager for this operation.

The following matrix summarizes the mitigation measures required for the Preferred Alternative.

Table 2. Mitigation Matrix

Impact Topic	Mitigation Required under the Preferred Alternative (Alternative B)	Responsible Party
Wildlife	Desert bighorn sheep will be blindfolded upon capture.	NDOW Project Manager
	A veterinarian will be on-site to monitor captured bighorn sheep.	NDOW Project Manager
Visitor Experience and Wilderness Character	Aerial operations over Wilderness areas will usually be confined to weekdays, when possible, to avoid the time of the highest use by wilderness visitors. The Superintendent of Lake Mead NRA may determine that weekend operations are necessary and will document such a determination.	NPS Project Liaison (Wildlife Biologist) and Wilderness Coordinator
	Notification of aerial operations over Wilderness will be provided to the public through the park webside, press releases, and at the park visitor centers.	NPS Project Liaison
	The base of operations will all be located outside Wilderness.	NPS Project Liaison
	All ground support vehicles will be restricted to existing access roads, outside of the designated Wilderness. No off-road travel is permitted.	NPS Project Liaison
	All drop-net trapping locations will be located outside designated Wilderness, if possible, in desert washes or previously disturbed areas. If trap locations in designated wilderness is necessary, approval by the Lake Mead NRA Superintendent is required.	NPS Project Liaison and Wilderness Coordinator
Safety	A separate job safety analysis will be prepared.	NDOW Project Manager and NPS Project Liaison

ENVIRONMENTAL CONSEQUENCES OF THE PREFERRED ALTERNATIVE

Following the implementation of the mitigation and monitoring measures, the environmental consequences of implementing the Preferred Alternative are as follows:

Wildlife, Wildlife Habitat, and Sensitive Species of Concern

Low level flights have the potential to displace and/or disrupt normal behavior patterns of wildlife. The duration of the flights within each project area varies from 2 to 6 hours. Sixteen hours is scheduled for the Eldorado Mountains to allow for radio collaring. Wildlife in the immediate location where landing would occur in the Eldorado Mountains and River Mountains would be disrupted and temporarily displaced to available habitat nearby. Implementation of alternative B would result in localized, short-term, minor adverse impacts since flight response behavior is expected without interference with activities necessary for survival.

Under alternative B, sheep management activities would be implemented and information regarding population status, sustainability, and trends in herd movements would be available for sound management practices and decision-making. Data received from bighorn equipped with telemetry collars would provide information regarding the impacts that bridge and highway construction may pose on bighorn habitat use and movement

patterns.

Depending on aerial survey results, individuals from the Muddy Mountains and/or River Mountains herds may be captured and transplanted to aid in recovery of bighorn herds elsewhere. Bighorn sheep captures and transplanting would help restore populations to their optimal levels and aid in sustainability and diversity of the herd. Desert bighorn sheep would be directly disturbed if they are captured and tagged, and/or relocated. Mitigation should prevent major impacts to individual sheep. However, there is the possibility that the capture operation or relocation could lead to direct mortality of individual sheep.

Desert bighorn sheep management activities would result in long-term beneficial effects to bighorn populations.

Cumulative Effects: Wildlife are currently disturbed and their normal activities can be disrupted by low-level flights over Lake Mead NRA, in particular, low-level helicopter flights. This could continue in the near future.

Conclusion: There would be negligible to minor, short-term, adverse impacts to wildlife from alternative B due to temporary displacement during air operations. Individual bighorn sheep would be directly impacted from the management operations. In the long-term, bighorn sheep populations would benefit from efficient and science-based management. No impairment would occur to wildlife, wildlife habitat, and sensitive species from the impacts associated with this alternative.

Natural Soundscapes

Portions of the project would be located in designated Wilderness. Human-generated noise from project aircraft would occur overall for approximately 40 hours within a one-year timespan. Aircraft noise from the implementation of alternative B would occur for as few as 2 hours and for no more than 6 hours in individual wilderness areas, creating temporary minor to moderate impacts. Visitors and wildlife in the vicinity of the project areas would be disturbed during flight operations. Flights would usually be scheduled during weekdays, and would avoid weekends during periods of peak visitor visitor use. Landing helicopters to secure and transport bighorn would have temporary minor adverse impacts to the natural soundscapes in the immediate area. Impacts from aircraft would result in short-term, minor, localized, adverse impacts to the natural soundscapes.

Cumulative Effects: There would be continued impacts to the natural soundscape from flights and air tours over Lake Mead NRA.

Conclusion: Under alternative B, there would be minor, short-term, adverse impacts on natural soundscapes in wilderness areas, due to aerial operations. The impacts are considered minor because the noise generated from flight activities would be detectable, but temporary. Cumulative impacts from current flights and air tours over Lake Mead NRA would continue to impact park soundscapes. No impairment to natural soundscapes would occur from implementation of this alternative.

Visual Resources

The presence and observation of low-flying aircraft could disrupt the wilderness experience for visitors near the project areas. Short-term, negligible impacts to visual resources would occur during aerial survey activities.

Cumulative Effects: The observation of low-flying aircraft associated with air tours can detract from the viewshed and create temporary negative impacts to park visual resources.

Conclusion: Implementation of alternative B would result in short-term, negligible impacts to visual resources due to the observation of low-flying aircraft, particularly in Wilderness.

Visitor Experience

Visitors to wilderness areas expect quiet and solitude, devoid of artificial noise and non-natural objects. During flight surveys, visitors near the project area would be impacted from sound and visual intrusions. This would result in short-term, adverse impacts to visitor experience in a wilderness area. Visitors would be impacted as little as a few minutes, or as much as 6 hours at a time for several days, depending on where they are and the schedule of the management activities.

Cumulative Effects: Wilderness visitors at Lake Mead NRA currently are impacted by overflights. This impact would continue under the no-action alternative.

Conclusion: Visitors in wilderness areas where the project is occurring would experience short-term, adverse impacts due to the visual and noise impacts from low flying aircraft in a backcountry area.

Safety

As with any aerial operation, there are inherent risks involved to participants. Mitigation measures and compliance with required policies serve to reduce the risks. However, the risks can not completely be eliminated. Therefore, there is the potential for injury and loss of human life during these operations. If this occurs, severe, even irreversible adverse impacts would result.

Cumulative Effects: None

Conclusion: Even with following required policies and safety mitigation, there could be severe, irreversible impacts to participants in the aerial operations.

Wilderness

Wilderness impacts are associated with biophysical and experiential effects. Biophysical effects include the ecological health of the area, including wildlife. Allowing appropriate bighorn sheep management activities within Wilderness would preserve the ecological health of the bighorn sheep herd within Lake Mead NRA, which is considered an

important resource in wilderness areas within Lake Mead.

Experimental effects include opportunities for solitude, natural quiet, self-reliance and discovery. Natural quiet was addressed previously under "Soundscapes" and solitude was addressed under "Visitor Experience."

Cumulative Impacts: As stated in the previous impact topics, wilderness visitors are currently being impacted by aircraft overflights. Cumulative impacts to wilderness users from aircraft include minor to moderate impacts from noise and visual disturbance, and reduced opportunity for solitude.

Conclusion: Under this alternative, there would continue to be minor to moderate negative impacts to the wilderness resource and wilderness visitor from aircraft overflights. The ecological health of the wilderness areas would be preserved as bighorn sheep management objectives in wilderness are accomplished. There would be no impairment to Wilderness from the impacts associated with implementation of alternative B.

PUBLIC INVOLVEMENT AND AGENCY COORDINATION

On August 4, 2003, public scoping was initiated through the release of a press release and through the Lake Mead NRA website. One comment was received during this period concerning the impacts the project activities would have on desert bighorn sheep.

A 30-day public comment period was provided for public review of the EA. Public notice of the availability of the EA was published in local newspapers and on the park's website. Seventy-five copies of EA were circulated to individuals, businesses, and organizations on the recreation area's mailing list. Additional copies of the EA were made available at all area libraries. Individuals and organizations could also request the EA in writing and by telephone. Various federal and state resource agencies, Native American tribes, and members of the public were consulted in the review of the EA.

In total, two comment letters were received on the EA during the 30-day comment period that extended from September 9 through October 9, 2003. The comments were from the State of Nevada and both supported the project as written.

BASIS FOR DECISION

The NPS selects Alternative B because it will assure for all generations a safe, healthful, and esthetically pleasing surrounding. It would help preserve important natural aspects of our national heritage, including one of the world's premier bighorn sheep population. It would help maintain an environment that supports a diversity and variety of individual choice.

Monitoring bighorn sheep populations to assess trends and detect significant demographic changes and/or home range/movement changes is important in maintaining optimal levels of bighorn sheep. Bighorn populations are highly sensitive to changes due to the harsh environments they inhabit. Without knowledge of population status and distribution, it would be difficult to make sound management decisions regarding harvest, augmentations, habitat conservation and enhancement, and incompatible activities in bighorn habitat.

The EA included a Wilderness minimum requirement analysis to assist managers in determining what activities and tools are appropriate in Wilderness. The conclusion of the analysis is that the aerial operations are the minimum tool necessary to conduct bighorn sheep management activities. Under the Clark County Conservation Act of 2002, which designated the Wilderness units within the recreation area, aerial activities for wildlife management were specifically authorized. The nature of bighorn sheep habitat, which is in remote and rugged terrain, and the difficulty spotting sheep, preclude the use of other survey techniques such as driving, hiking, or high-level flights. Preserving the bighorn sheep populations through active management supports the Wilderness resource in whole, and is considered important for long-term preservation goals. The operations would be conducted on a temporary, non-routine basis, with limited flight time in Wilderness, and no permanent modification or occupation would occur.

Although there would be minor transitory aesthetic adverse impacts to wilderness users, preserving the bighorn sheep herds are of paramount importance to the wildlife management and conservation goals of the NPS and NDOW.

IMPAIRMENT OF PARK RESOURCES OR VALUES

The effects of the Preferred Alternative will not impair Park resources or values necessary to fulfill specific purposes identified in the Park's enabling legislation. Impacts documented in the EA and summarized above will not affect resources or values key to the natural and cultural integrity of the Park or alter opportunities for enjoyment of the Park. The Preferred Alternative will not impair Park resources and will not violate the NPS Organic Act. This conclusion is based on a thorough analysis of the impacts described in the environmental assessment, the agency and public comments received, and the professional judgment of the decision-maker in accordance with National Park Service *Management Policies, 2001*.

CONCLUSION

Based on the analysis completed in the EA, the capability of the mitigation measures to reduce, avoid, or eliminate impacts, and with due consideration of public response, and the findings of the Wilderness minimum requirement analysis, the NPS determined that the selected alternative does not constitute an action that normally requires the preparation of an environmental impact statement. Connected actions with cumulative effects include ongoing NDOW activities adjacent to the recreation area within Bureau of Land Management administered lands, and activities related to the Black Canyon Bridge Construction and Monitoring project. These actions are evaluated in separate environmental documents and are considered in the cumulative impact section of the EA. There would be minor, temporary, cumulative impacts from these activities.

The selected action will not have significant effects on the quality of the human environment. Negative environmental impacts that could occur from implementing the selected action are minor and temporary. There are no highly uncertain or controversial impacts, unique or unknown risks, or elements of precedence identified. Implementation of the selected action will not violate any federal or state environmental protection law. Therefore, in accordance with the National Environmental Policy Act of 1969 and regulations of the Council on Environmental Quality (40 Code of Federal Regulations 1508.9),an environmental impact statement is not required for this project, and the selected action may be implemented as soon as practical.

Recommended:

_____ _____

William K. Dickinson, Superintendent Date
Lake Mead National Recreation Area

Approved:

_____ _____

Jonathan B. Jarvis Date
Regional Director, Pacific West Region